

## CLAIMS

Please amend the presently pending claims as follows:

1. (Currently Amended) A method for the sending of a signal formed by vectors, each vector comprising N source symbols to be sent, and implementing M transmit antennas where M is greater than or equal to 2, the method comprising:

linearly precoding said signal, implementing a matrix product of a source matrix, formed by said vectors organized in successive rows, by a linear precoding matrix, delivering a precoded matrix, and

sending precoded vectors corresponding to columns of said precoded matrix successively, wherein ~~the each precoded vector has M symbols, which of each precoded vector have undergone a precoding by a same column of the linear precoding matrix and~~ are distributed over said M antennas.

2. (Previously Presented) The method according to claim 1, wherein the precoding matrix comprises a block matrix.

3. (Previously Presented) The method according to claim 1, wherein the precoding matrix comprises a unitary matrix having a size greater than or equal to M.

4. (Previously Presented) The method according to claim 1, wherein the precoding matrix has the form:

$$\Theta_L = \sqrt{\frac{2}{L}} \cdot \begin{bmatrix} \Theta_{L/2} & \Theta_{L/2} \\ \Theta_{L/2} & -\Theta_{L/2} \end{bmatrix}^T$$

with  $\Theta_2 = \begin{bmatrix} e^{i\theta_1} \cos \eta & e^{i\theta_2} \sin \eta \\ -e^{-i\theta_2} \sin \eta & e^{-i\theta_1} \cos \eta \end{bmatrix}$

and  $\eta = \frac{\pi}{4} + k \frac{\pi}{2}$ ,  $\theta_2 = \theta_1 - \frac{\pi}{2}$ , and for  $i \in [1,2]$ ,  $\theta_i = \frac{\pi}{4} + k' \frac{\pi}{2}$  where  $k, k'$  are relative integers.

5. (Currently Amended) A method for ~~the reception of~~ receiving a signal sent on  $M$  transmit antennas where  $M$  is greater than or equal to 2, implementing  $P$  receiver antennas, where  $P$  greater than or equal to 2, wherein the method comprises:

receiving reception vectors on said  $P$  antennas, which are distributed by columns in a reception matrix, each reception vector comprises  $P$  received symbols distributed on said  $P$  receiver antennas and corresponding symbols having undergone a precoding by a same column of a linear precoding matrix at sending, wherein  $P$  symbols of each reception vector are distributed on said  $P$  antennas,

processing said reception matrix, comprising multiplying by a linear de-precoding matrix representing the a linear precoding matrix used at sending, so as to obtain a de-precoded matrix by which it is possible to extract an estimation of source symbols sent in the signal.

6. (Previously Presented) The method according to claim 5, wherein the de-precoding matrix is the conjugate transpose matrix of said precoding matrix.

7. (Previously Presented) The method according to claim 6, wherein said sent signal is conveyed between said  $M$  transmit antennas and said  $P$  receiver antennas by a transmission channel, said reception matrix is multiplied, during said processing, by a matrix representing the inverse of said transmission channel, so as to obtain a matrix of estimated symbols sent, and wherein said matrix of estimated symbols sent is then multiplied by the de-precoding matrix.

8. (Previously Presented) The method according to claim 6, wherein the method comprises a preliminary step of detecting said  $M$  transmit antennas implementing a successive cancellation algorithm.

9. (Previously Presented) The method according to claim 5, wherein said sent signal is conveyed between said M transmit antennas and said P receiver antennas by a transmission channel, and said de-precoding matrix is an inverse matrix of a total matrix associating the matrix of said channel and said linear precoding matrix.

10. (Previously Presented) The method according to claim 9, wherein said de-precoding matrix is determined by implementation of a Cholesky decomposition algorithm.

11. (Currently Amended) A signal method comprising:

generating a signal comprising precoded vectors to be sent successively on M transmit antennas, where M is greater than or equal to 2, the M symbols of each vector being distributed on said M antennas, wherein the precoded vectors correspond to columns of a precoded matrix and each precoded vector has M symbols, which have undergone a precoding by a same column of the linear precoding matrix and are distributed on said M antennas,

and wherein the precoded matrix is wherein the vectors are precoded vectors corresponding to columns of a precoded matrix obtained by a matrix product of a linear precoding matrix and a source matrix, formed by source vectors each comprising N source symbols to be sent, said source vectors being organized in said source matrix in successive rows, and

sending the signal.

12. (Currently Amended) A device for sending a signal formed by vectors each comprising N source symbols to be sent, and implementing M transmit antennas, where M is greater than or equal to 2, the device comprising:

means of linearly precoding said signal, implementing a matrix product of a source matrix, formed by said vectors organized in successive rows, by a linear precoding matrix, delivering a precoded matrix, and

means for successively sending precoded vectors corresponding to columns of said precoded matrix, wherein each precoded vector has the M symbols, which of each precoded vector have undergone a precoding by a same column of the linear precoding matrix and are being distributed over said M antennas.

13. (Currently Amended) A device for ~~the reception of~~ receiving a signal sent on M transmit antennas, where M is greater than or equal to 2, said device comprising:

P receiver antennas, where P is greater than or equal to 2,

means of reception, on said P antennas, of reception vectors, and means of distribution by columns of said reception vectors in a reception matrix, wherein each reception vector comprises P received symbols distributed on said P receiver antennas and corresponding symbols having undergone a precoding by a same column of a linear precoding matrix at sending the P symbols of a reception vector being distributed on said P antennas, and

means of processing of said reception matrix, comprising means of multiplying by a linear de-precoding matrix representing ~~a~~ the linear precoding matrix used at sending, so as to obtain a de-precoded matrix by which it is possible to extract an estimation of source symbols sent.